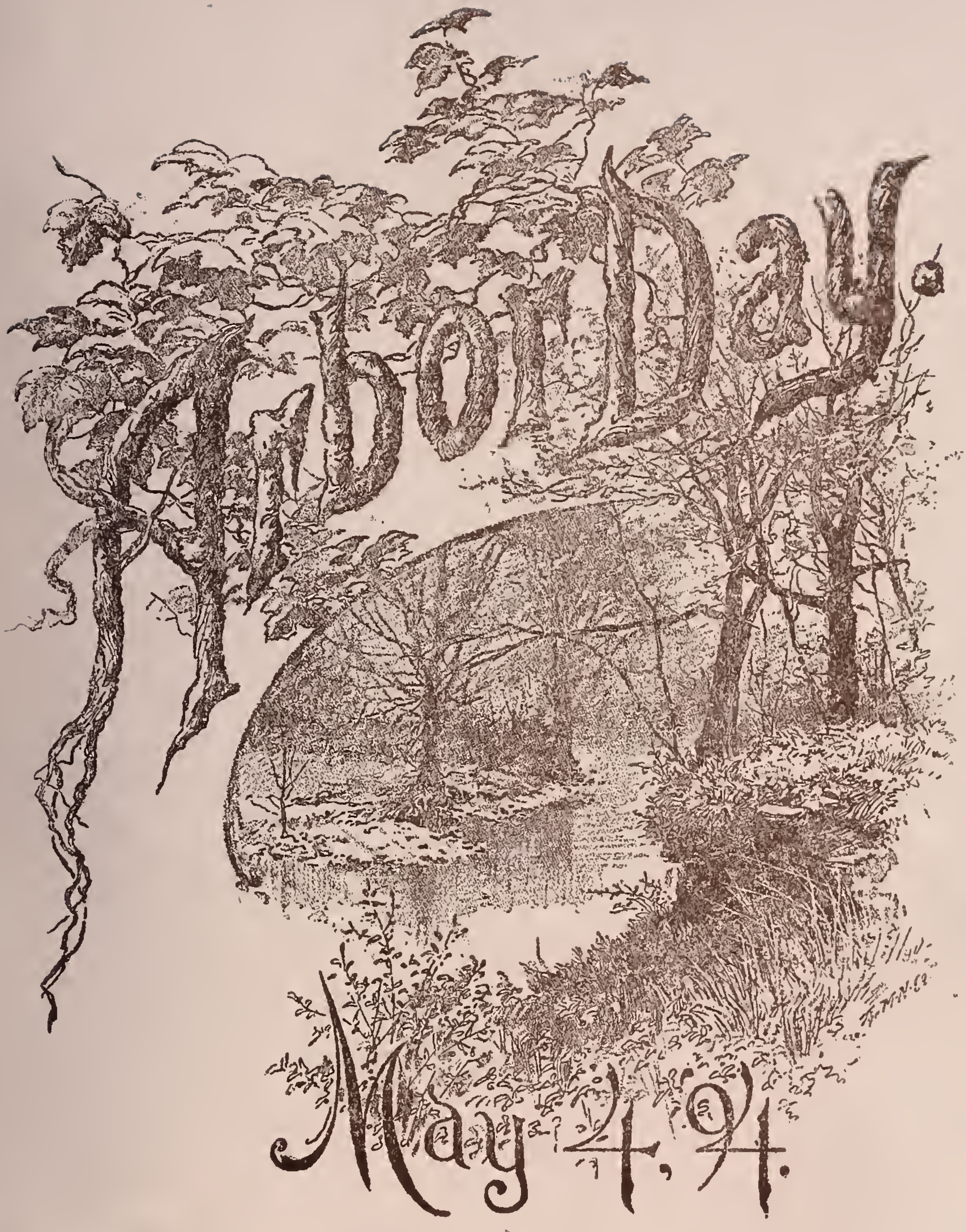

Arbor Day

May 4, '94.

State of New York.

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STATE OF NEW YORK.

DEPARTMENT OF PUBLIC INSTRUCTION.

ARBOR DAY

May 4, 1894.

Chapter 196.

AN ACT TO ENCOURAGE ARBORICULTURE.

APPROVED April 30, 1888.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Friday following the first day of May in each year shall hereafter be known throughout this State as Arbor Day.

2. It shall be the duty of the authorities of every public school in this State, to assemble the scholars in their charge on that day in the school building, or elsewhere, as they may deem proper, and to provide for and conduct, under the general supervision of the city superintendent or the school commissioner, or other chief officers having the general oversight of the public schools in each city or district, such exercises as shall tend to encourage the planting, protection and preservation of trees and shrubs, and an acquaintance with the best methods to be adopted to accomplish such results.

§ 3. The State Superintendent of Public Instruction shall have power to prescribe from time to time, in writing, a course of exercises and instruction in the subjects hereinbefore mentioned, which shall be adopted and observed by the public school authorities on Arbor Day, and upon receipt of copies of such course, sufficient in number to supply all the schools under their supervision, the school commissioner or city superintendent aforesaid, shall promptly provide each of the schools under his or their charge with a copy, and cause it to be adopted and observed.

§ 4. This act shall take effect immediately.

New York is the banner State in Arbor Day work as well as in its liberal policy for the extension and conservation of State forests. Though late in starting the observance of Arbor Day, during the last four years it has achieved greater results than any other State, in the number and excellence of its Arbor Day circulars and programs sent to all its schools; in the space in its Annual Educational Report, devoted to information and suggestions for Arbor Day observance; in the wide-spread interest in the selection of a State tree and State flower, involving over half a million of ballots in a single year; in the choice, by vote of the teachers, of the best American poem on trees (Bryant's "Forest Hymn"); in the prizes offered for the best kept district school grounds and for the best Arbor Day essay. Who can estimate the influence thus exerted upon the million of youth in the schools of the Empire State in fostering love of nature and a higher appreciation of the beauty and value of trees? Let each child be also encouraged to plant some flower, shrub, vine, or tree around the homestead or by the wayside.

B. G NORTHROP.

CLINTON, CONN.

We are gratified and pleased to receive from DR. NORTHROP of Connecticut, so favorable a commendation of our efforts in behalf of Arbor Day, and we esteem it more highly coming as it does from one who, after Hon. J. STERLING MORTON originated Arbor Day in Nebraska for economic tree-planting, was the means of applying this grand work to schools, and of establishing the observance of Arbor Day in the schools of many of our States and Territories, until now the day is observed in forty States and Territories in accordance with legislative act, or by special recommendation of the governor or State school superintendent, or the State grange, or the State horticultural and agricultural societies, or by all these combined.

"Just the same thing over and over!
  But that is the way of the world, my dear,
Over and over, over and over,
  Old things repeated from year to year."

Yet every spring the earth is new. There is a new majesty in the budding tree, a new freshness in each blade of growing grass, a new beauty in the flower, a new delicacy in the coloring of the tender buds, and in all the charming and subtle harmonies of color in sky and tree and flower, all appealing to the eye or ear. And since Nature is never weary of beseeching us to look and listen and learn, and every spring vies with herself in endeavoring to disclose to our view new glories, though we pass them by, unobserved, can there then be a limit to man's earnest effort in the cause of Arbor Day, or a point at which his pen should stop in devising means of making the day most interesting and most practically instructive?

We read with careless eye, however, and listen with divided attention, and soon forget in the busy whirl of our daily duties, and have not yet learned how to improve the odd moments, even amid our work, in watching Nature's movements and in listening to her secrets, which are whispered in our ear by every rustling tree, and sung to us by bird and insect, and held up to our gaze in every bud and leaf and flower. Thoreau truly says, "We should go to the woods and make leisure and opportunity to see the spring come in—on the alert for the first signs of spring, to hear the chance note of some arriving bird, or the striped squirrel's chirp, for his stores must be now nearly exhausted, or see the woodchuck venture out of his winter quarters. We can never have enough of Nature. We need the tonic of wildness."

Had the pen or the human voice the power possessed by one little flower of which we read, Arbor Day would long ere this have become the brightest and most eventful day of all the year.

You perhaps know the story of Count de Charney, the French political prisoner, and *la povera Picciola*, "the poor little one," as he named it, and how one day, while slowly crossing his prison courtyard and counting the paving stones, his attention was suddenly arrested by a slight mound of earth, rising between two stones, and divided at the top. Greatly agitated, he thought of subterranean ways of escape, which were perhaps on the point of opening, and of life and liberty. But in a moment cool reason had returned, and he stooped down to the little mound and gently widened the opening. Deeply humbled, he saw that his emotion was caused by a weak, pale, and languishing plant, and he was only arrested in the act of destroying it by a fragrant breeze which reached him from beyond his stone walls, and seemed to implore mercy for the poor plant, which would perhaps some day yield perfumes for him. As the days passed by he studied his "poor little one," and learned the office of the cotyledons; he saw it go to sleep at night and waken in the morning; he learned the use of the spiny hairs which covered its stalk, and even became able at last to determine the hour of the day from the odor of his plant. And as the time drew near for it to blossom, he found himself impatient and curious. This man — with worn-out heart and frozen brain, so vain of his intellect, and who had just fallen from the height of his proud science to sink his vast thoughts in the contemplation of a blade of grass — was wishing for something. Anxiously he watched it blossom, and the blossom ripen into fruit, and studied the insects which sought to destroy his plant, and tempered every breeze that visited it, and shielded it with his own clothing from the storm or the too hot rays of the sun.

Could some tree or plant, leaf or blossom, so appeal to every teacher and pupil in our State, the celebration of Arbor Day could not be criticised as having too much oratory and too little practical or intelligent instruction; much music and declamation, but very little of anything that can add to the popular interest or knowledge regarding trees or forests, or their functions and value, and when our Arbor Day speakers shall realize that the children need *instruction* in all matters pertaining to the day, they will perhaps be aroused to active work, that they may have a fulness of knowledge and experience from which to speak. Theorizing is all very well, and a citing of the experience and discoveries of others, but what we need is a practical application on the part both of old and young. Arbor Day should be the culmination of the year's experiments and study, not a day when a spasmodic interest in tree-planting and gardening is felt, to be forgotten all the rest of the year, until the day shall come around again.

We admit, of course, that the sentimental side of the celebration has its uses, and to cultivate an affection for trees and an appreciation of their beauty is worth striving for. But our pupils will love trees no less when with that affection is associated a knowledge of name and characteristics, proper method of planting and requirements for wholesome growth; neither will their love decrease if they are taught that the object of Arbor Day is not fulfilled when the last tree, deprived of its tender fibrous roots, is hastily put into a hole altogether too small for it and covered with earth in no wise prepared to nourish it, or when the last oration is delivered and the last song sung. What would be our criticisms should the builders endeavor hastily to construct the building when we were all assembled for the dedication, when we were impatiently waiting for some more entertaining part of the program? Let us be as consistent in our tree-planting, and remember that when we begin to interfere with Nature's laws, we are opening the way for failure.

The law does not compel us to plant trees *on* Arbor Day, no matter how unsuited the season or the weather, but distinctly states that the exercises of the day "shall tend to encourage the planting, protection and preservation of trees and shrubs, and an acquaintance with the best methods to be adopted to accomplish such results." It is an act to encourage arboriculture, the culture of trees, for *arbor* was a tree to the Romans, and we do not encourage such culture unless we plant trees at the time best suited for their growth.

We have now been observing Arbor Day for five years, since May 3, 1889, and is it not time that we should point out to the children that there is something for them to do personally other than learning orations and poems suited to the day? This must be our aim and purpose if the day is to continue a permanent institution in our State. The children, of course, can not plant trees, but they can learn how it ought to be done, and can watch the process in a quiet hour, when an eager audience, far from the scene of battle, are not wishing it were well over.

But better still, go to Nature herself, and take your pupils with you, even without book or picture, and not only look, but *see* for yourself what she would teach you of tree and leaf and flower, and of all her fairest children, those delicate plants

> "That come before the swallow dares and take
> The winds of March with beauty,"

as well as those which appear through all the succeeding months, until snow covers the ground again. We are too likely to botanize in the spring, and by June forget that the woods are redolent with new beauties, but "once you wish to identify them, there is nothing escapes."

Though we may claim to have no knowledge of botany, we can learn with our pupils; and with our library law of 1892, by which the State apportions to each district an amount of money equal to that raised for library purposes, why should not every school soon have at its command quite a botanical library to verify the observations made in field and wood?

What wonders might not be in store for our children if we would but lead them to Nature, instead of away from her, burying their youthful fancies and imaginations and questionings in the printed page, the product of other men's thought, thus cutting off all original research, the natural tendency of boy or girl, particularly at that period of life when their habits and tastes are being formed and when we unconsciously, but just as surely, nevertheless, are turning their faces toward the pathway which they shall follow all through life — yes, and more than that, are starting their feet in that pathway.

If we direct all their attention toward a mercantile life, our boys and girls, when compelled to leave school, will rush to the cities, already overcrowded with applicants, to engage in mercantile pursuits, leaving horticultural and agricultural interests even more neglected than they are now.

Farming and gardening are coming to be considered as beneath the attention of many, and as a consequence our farms are suffering; but give our children such training in horticulture, agriculture, and arboriculture as foreign countries are giving their children, or at least instill in them a love for such study and research, and with all the aids which this age of machinery and genius have placed at our command, many of our boys and girls will find in such occupation their chief delight.

The best thing we can do for our pupils, next to rousing the conscience, is, not to give them things to think about, but to wake things up that are in them; or, in other words, to make them think things for themselves.

It was in a meditative moment that the idea dawned upon the mind of Goethe that the flower of a plant is not a separate organ, but only the higher development and transformation of its leaves; that all the parts of a plant, from the seed to the blossom and fruit, are only modifications of the leaf. Are there no discoveries yet to be made, and have we already reached the highest point of development and culture in natural science?

And there is another reason why I would urge you to go to field and wood to study plants and trees, for I am convinced that we can only study them aright when we consider them in their relation to bird and insect and habitat. What is the tree without the bird that builds its nest therein, and what the woods without the thousand chirps and trills that make it seem enchanted? Truly a wood "without birds is like a meat without seasoning." And not alone considered æsthetically is there value in this, but the defense of trees against their insect enemies introduces us to one of the most interesting provinces of the out-of-door world, the life of birds and their services to man. "The bird is not in its ounces or inches, but in its relation to nature."

Consider the tree or flower away from all its surroundings, away from the life and stir, and quiet hum or merry chirp, gleaning all information from the printed page, within the four walls of a schoolroom, when everything without calls so enticingly, and is it any wonder that children do not love botany? Even in a seemingly barren school yard busy little minds will find much of interest.

In our manual this year we give some directions for beautifying the school grounds, and have been careful to speak only of hardy plants, which, with a little care, will thrive and blossom year after year. Let the boys and girls feel a pride in this, and let them personally do the work. They will love it more. If you have no shady corner for ferns or wild flowers, plant some trees and make one, even though neither teacher nor pupil may remain to benefit by them. Some coming later will thank you in their hearts. And if there is no school yard for such work, strive to have the school grounds enlarged, or have the children find a place at home or obtain the privilege of gardening some waste spot, and encourage them to report frequently their progress. This will lead them to inquire of florist and botanist concerning many points. In cities, where garden space is small, the Japanese ivy is a most beautiful vine for planting, and requires but little ground space.

All this, we are well aware, is not forestry proper; but our children are not lumbermen or legislators, nor do they own vast tracks of mountain forests—but they may be, and may some day, and we are now preparing them to judge wisely in the future.

We are favored this year with a delightful letter to the children from Mrs. William Starr Dana, who has written so beautifully of the wild flowers in her literary productions. I particularly desire that this letter may reach every child in the State, and that all may be encouraged to follow Mrs. Dana's advice.

The Department is very much interested in this Arbor Day work, and would like to hear frequently from all parts of the State, of efforts made and results accomplished, and even an account of failures would contain much of interest. Do not let the State be silent upon this question. Last year, when a liberal reward was offered for a herbarium of trees, the response was surprisingly slow and meager.

The reward offered to a member of a union free school or common school of the State was earned by James A. Burdick, of Rotterdam, Schenectady Co., a boy thirteen years of age, who had spent much time and thought in the preparation of a very creditable collection of specimens of our State trees. There were no competitors for the other reward offered.

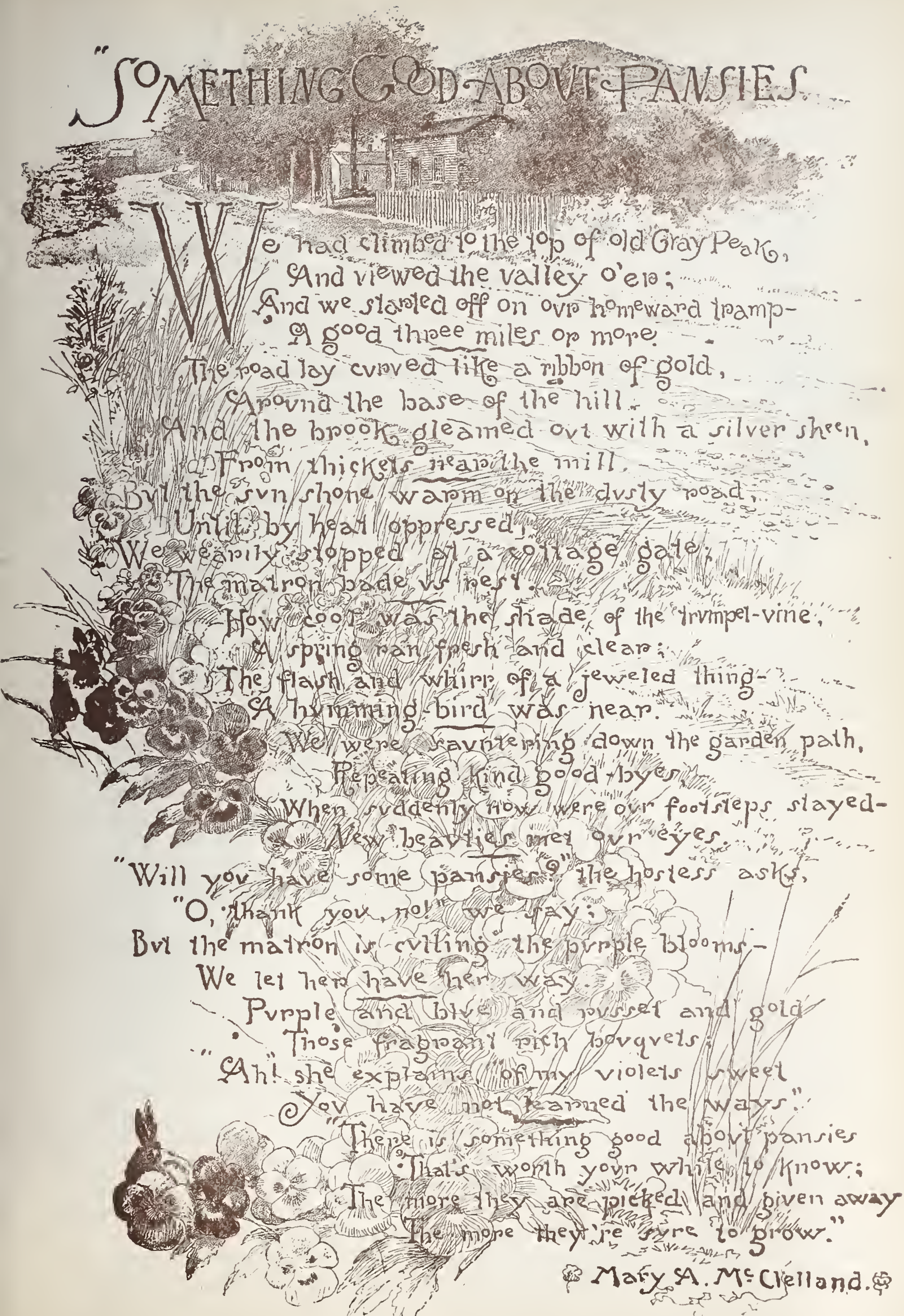
Last year we published notes of our native maples, this being our State tree, which would enable anyone to recognize and name them. This year a similar account of the oaks is given, these being very numerous, attractive and useful in our State. The truth is that very few people, comparatively, can identify half the trees in our woods or by our roadsides, and such instruction is needed as will enable our pupils to call our familiar trees by their proper names. Let us do a little every year, and this year lay out for ourselves and our pupils a careful study of the oaks, which will be quite an addition to our tree knowledge.

When we have learned to *know* nature, we can appreciate, perhaps, to a degree, the sentiment of Emerson: "A sunset, a forest, a snow-storm, a certain river-view, are more to me than many friends, and do ordinarily divide my day with my books.

J. F. Crooker,

State Superintendent.

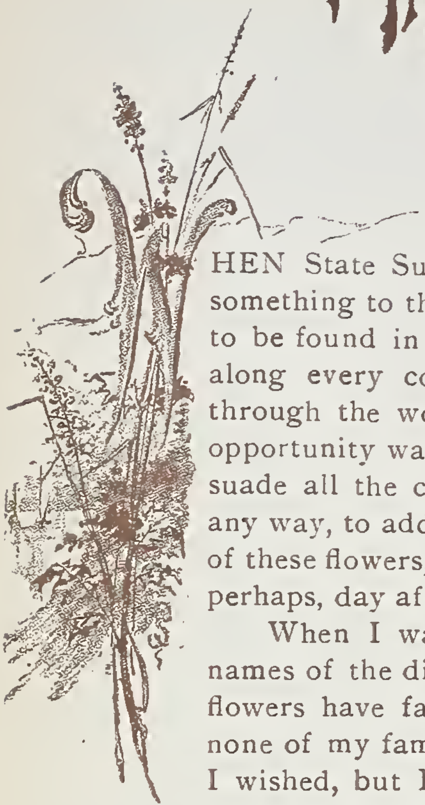
"SOMETHING GOOD ABOUT PANSIES



We had climbed to the top of old Gray Peak,
And viewed the valley o'er;
And we started off on our homeward tramp-
A good three miles or more.
The road lay curved like a ribbon of gold,
Around the base of the hill.
And the brook gleamed out with a silver sheen,
From thickets near the mill.
But the sun shone warm on the dusty road,
Until, by heat oppressed,
We wearily stopped at a cottage gate;
The matron bade us rest.
How cool was the shade of the trumpet-vine,
A spring ran fresh and clear;
The flash and whirr of a jeweled thing-
A humming-bird was near.
We were sauntering down the garden path,
Repeating kind good-byes,
When suddenly now were our footsteps stayed-
New beauties met our eyes.
"Will you have some pansies?" the hostess asks,
"O, thank you, no!" we say;
But the matron is culling the purple blooms-
We let her have her way.
Purple and blue and russet and gold
Those fragrant rich bouquets;
"Ah!" she explains, "of my violets sweet
You have not learned the ways."
"There is something good about pansies
That's worth your while to know;
The more they are picked and given away
The more they're sure to grow."

Mary A. McClelland.

The Girls and Boys.



WHEN State Superintendent Crooker wrote and asked me to say something to the boys and girls of our schools, about the pleasure to be found in making the acquaintance of the flowers which grow along every country road, which border the well-known paths through the woods, or across the fields, I felt at once that the opportunity was not one to be lost; for I am most anxious to persuade all the children, all the young people, whom I can reach in any way, to add to the interest of their lives by learning something of these flowers, which they have been passing by without a thought, perhaps, day after day, year after year.

When I was a very little girl I wished greatly to know the names of the different flowers, whose faces—for it seems to me that flowers have faces—were so familiar to me. It so happened that none of my family or friends could give me the information which I wished, but I chanced to hear that a book called "How Plants Grow" had been written by the well-known student of plants, the great botanist, Dr. Gray, for the use of children, and that this book would show me how to find out for myself the names of all the flowers; so I persuaded my mother to buy it for me, and I remember so well the eager delight with which I began its study, a delight which unfortunately, soon gave way to discouragement, as I was too young and inexperienced to master the "Key" which could unlock the secret of the flowers' names, and at last, in despair, I gave up the attempt. I can hardly tell you how sorry I am to-day that I did not turn to some older friend for help, for now I know that by failing to do so, I have missed a great deal of real delight, that many a walk in the woods, that many a picnic would have been far more full of pleasure had I had some little knowledge of the names and ways of the flowers which were always near at hand, and which I always loved and noticed.

It was only a few years ago that I began once more seriously to study them, and I assure you, my dear boys and girls, that since I have learned not only to know by sight, but to call by name these flowers, to recognize their families, to notice their queer little habits and whims, a lonely walk along an ordinary country road is as much more full of interest than before, as you would find it pleasanter to go off for a day's frolic, with your own friends, the boys and girls you know and like, than with a party of strangers, whose very names were unknown to you, from another town.

Until I discovered it for myself I would not have believed what good company these flowers could be. You would quite forget about the tiresome, dusty tramp to school if you were always on the lookout for a new flower, and finding one oftener than you now think possible. And this finding of a new flower—one that we have never seen or known before—what a delight it is; and how interesting to learn the names belonging to it, not only the English name—the name it is known by in certain places only, as you are known by your nickname, chiefly among your family and friends—but also its Latin or real name. This is sometimes ugly, but often pretty and musical, and very important because by it the little blossom is known all over the world, never mind what strange language may be spoken in the various places where it grows. If you asked a German, or an Italian, or a Russian, or perhaps even a learned Chinaman, for the plant's name, and if he were a botanist, that is, a person who really knew a good deal about plants, he would give you the same Latin name which you might have learned in your quiet little corner of the globe. So it is quite worth while, you see, to learn the Latin as well as the English name of a flower.

Now the object of this letter is to persuade the girls and boys of our schools—and especially of our country schools (although even the city children can learn a good deal, if they choose, in the great parks, and when they go off for a little holiday into the country)—to learn first the names of all the wild flowers that grow in their neighborhood.

It would seem very stupid, would it not, every day, vear after year, to live near and to pass by certain people and yet fail to find out their names, or anything else about them? And, at the risk of being impolite, it *is* a little stupid to remain ignorant all our lives of the names of the flowers that spring up at our very feet. I hope that from now on you will keep asking—until you get answers—their names of everyone you meet. If, at first, the older people don't know, but see that you are bent on finding out, the chances are that they will go to work themselves and learn the names, so as not to be obliged always to confess their ignorance. But perhaps your teachers will be able to help you without difficulty. And what I advise you to do is this: Get a large sheet of paper, or a little blank book, and write down the English and Latin names of each flower, as you find it, the date of the day you first discover it, and the place — whether roadside or swamp, or woods, or dry hilltop, where you find it growing. As your list grows longer it will be a real pride and pleasure to you. You will soon begin to know when and where to expect to find the different ones. Perhaps some day some older botanist will pass through your town or village and will wish to know just what flowers grow in its neighborhood. Then will it not be a satisfaction to some boy or girl to bring out a long, complete list of all the plants, with their times of flowering, and the places which they frequent? Perhaps this information will be copied into some State Survey, and go into the great libraries, and so help to spread through the Union the knowledge of its flowers.

But even if nothing of this sort comes about, the girl or boy whose eyes are sharpened, and whose wits are quickened by a habit of constant and careful observation, will grow up, not only a far more delightful friend and companion, but a more useful, more trustworthy, and a happier man or woman.

The older people are sometimes to be blamed for the fact that the younger ones grow up with so little sharpness of observation. A child is by nature inquisitive. "Why is this?" "What is that?" fall so constantly from childish lips that not unnaturally the tired parents discourage by inattention or rebuke the habit of inquiry, failing to realize that by thus checking the healthy curiosity which is part of the nature of an intelligent child, they are doing him a serious injury. If these questions were patiently answered, even encouraged, never met with a sharp "Because it is!" the children's wits would be quickened, their powers of observation and reasoning increased, and their general mental capacity enlarged.

But not only do I advise you all to learn the names and dates and homes of the flowers, but to note carefully their color, and also the different shapes of their leaves, whether these are long and narrow, or broad and rounded, and whether their edges are smooth, or cut into little teeth, like the edge of a saw.

It is pleasant to be able to tell the name of a plant before its flowers appear, by its leaves alone. If you keep a plant-list, by all means write down a little description of the different leaves.

The roots too are worth attention. Many roots look like bunches of dirty threads. Others have a great hard knob, such as you find when you pull up the pretty green Jack-in-the-pulpit. Others run along underground, sending up leaves and flowers from time to time, as the Solomon's seal, with its curious scars reminding one of a seal, and the bloodroot, with the bright red juice which stains your fingers, and which the Indians used as war-paint. These last so-called "roots" are really *underground stems*, but they are called roots by most people, and you can describe them as such in your plant-list until you know a little more of botany.

Then you will want to learn the names of the different parts of the flowers. You will discover that one sort of flower has only four of the little bright-colored leaves called petals, while another sort has five or six. You will notice in the middle of most flowers two kinds of little objects that look something like pins. If you examine them carefully you will see that one kind is tipped with a flat, sticky disk that is like the head of a pin, while the other bears a tiny bag of golden dust which, when you smell the blossom, often powders your nose quite yellow. The explanation of the use of this dust, and of what is accomplished by the bee which buzzes up to the flower and sucks out its honey, you will find as interesting as a fairy story.

Those of you who really take an interest in plants, and who honestly wish to know about them, will perhaps start a collection of your own, getting one specimen of every flower you find, pressing it in newspapers, and when it is quite dry, fastening it to a sheet of white paper, with its English and Latin names carefully written below, laying it away with other specimens which you have treated in the same manner, for future use. Such a collection is far more interesting and useful than one of postage stamps, for example, and it will help you greatly to know and remember the flowers.

During this beautiful month of May I would like to visit all the country schools and persuade the teachers and scholars together to start monthly flower shows, the different boys and girls making exhibits, each one arranging his or her flowers in groups, all of one sort in one jar, and labeling them, if possible, with their English and Latin names, while certain older ones should be elected judges to decide each month upon the finest exhibit. At one of the meetings articles could be read about the different plants, or about all the flowers that could be found in a certain field, or along a particular piece of road. Such an article can be made very interesting if written by some one who is really in love with his subject.

The first show should take place before long. The woods and fields to-day are full of beautiful blossoms, delicate wild young things of the early year. Plenty of you know where to gather the finest liverworts, the largest bloodroots, the daintiest spring-beauties. You know some hollow in the woods where the Jacks-in-the-pulpit seem to hold spellbound their lovely congregations, where wake-robins are unfolding their red or white petals, and adders' tongues are drooping above their spotted leaves, and violets and anemones are crowding to the brook's edge. Many of you know the meadow where the rank-smelling skunk-cabbages are hiding their queer purple-hooded heads, and bright marsh marigolds or "cowslips" gleam like patches of sunlight.

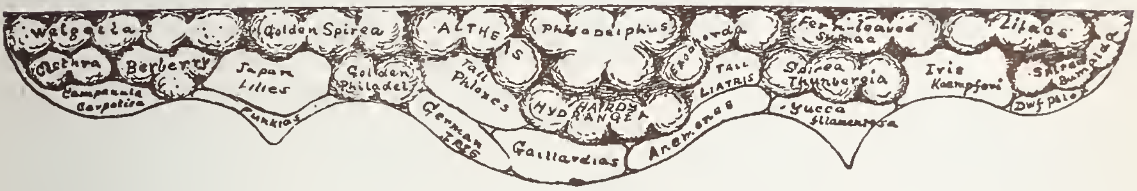
Let those of you who are flower-lovers by nature take the lead, and organize a May flower-show, and set out upon the summer of 1894 with a new interest and a new ambition.

After all, it is not easy to say all that one wishes upon paper. As I write, my thoughts run so far ahead of my fingers that at times my pen seems only to leave a straight line behind it. If I could meet you face to face, I feel sure that before the sun had set upon this Arbor Day, I could convince at least some of you of the ever fresh delight which can be found in these woods and fields which lie about us.

Sincerely yours,

FRANCES THEODORA DANA.

New York.



THE MIXED BORDER,

As Applied to the Decoration of School Grounds.

> "You must nurse your own flowers if you would have them flourish, unless you happen to have a gardener who is as fond of them as yourself."—*Robert Southey*.

The expense of procuring tender bedding plants every spring, for the flower borders, has prompted many a lover of flowers to abandon this plan of treatment for the garden, and wherever practicable, to return in a measure to the custom of our forefathers and restore the old fashioned garden of hardy, perennial plants. It is possible to improve upon the method of disorderly arrangement peculiar to the old fashioned garden of former days, and by a judicious introduction of hardy and well selected flowering shrubs, supplemented by perennial plants and Dutch bulbs, to make a border attractive throughout the entire season, without the necessity of an annual purchase of new stock or without much labor being expended for care and protection of the plants.

In order to illustrate this method of planting, and to make it applicable to the decoration of school grounds, a small border plan is submitted, locating and showing the several varieties of plants utilized to secure pleasing results. This is simply a suggestion. The possibilities of harmonious combinations are endless.

One of the most effective ways to use hardy herbaceous plants and bulbs is in combination with flowering trees and shrubs in an irregular border. Our illustration shows an arrangement for such a border that could be made against a building or fence, or along the outer margin of a lawn; it is especially effective as a boundary planting for small city grounds, and may be modified to suit almost any situation. All of the choicest shrubs and evergreens can be used in this way, forming a background of handsome flowers and foliage throughout the season.

Many hardy flowers require good culture to be appreciated; certain others take their chances, like an evergeen candytuft, and the large leaved saxifrage, and the day lily, the German iris, and a great many others. Hardy spring flowering bulbs, of all kinds, could be planted among the herbaceous plants, and along the edges these should be planted in colonies, and not scattered indiscriminately. Groups of lilies, of the long growing kinds, could be planted in the larger spaces between the shrubs, and they would grow more luxuriantly than they ever do when planted in open beds or borders.

The plan admits of splendid variety, and where there is sufficient scope, a wide belt of shrubbery might be made into the most delightful type of garden, varied, broken, and full of flowering things as well as beautiful shrubs and evergreens. The border should be well prepared before planting, as it is not to be disturbed afterward. The soil should be dug deeply and well enriched with manure, and if of a clayey nature, it would be well to add a few loads of sand or leaf mold. After planting, the border should not again be dug over; the custom of annually digging the surface of shrubbery borders results in mutilating the roots and it is of no benefit whatever. The proper way is to mulch the surface of the ground with two or three inches of stable manure in the fall; in early spring the coarser parts of the manure should be raked off, and the finer portion left as mulch for the summer. Managed in this way, the border can be kept in fine condition with very slight expense of labor.

The proper season for digging and preparation of a hardy border is late summer or early fall, so that it may be planted in September and October. The spring flowering bulbs, which are so great an addition to the hardy border, must be planted in the fall, and a majority of hardy plants are better for being planted then, and a few things that cannot be planted in the fall could be added in the spring.

As the hardy border is to be permanent, and to be disturbed as little as possible in the future, it should be thoroughly prepared at the beginning. If the soil is well drained, deep digging will be all that is necessary. I mean by deep digging, the surface soil should be dug a spade's depth and laid to one side, then dig the sub-soil as deeply as it can be done with the spade; replace the surface soil and apply a liberal dressing of well-rotted manure, preferably cow manure. This shonld be thoroughly dug into the soil, pulverizing it and the soil as finely as possible. The border is now ready for the planting of the hardy spring flowering bulbs, lilies, irises and such other plants desirable for fall planting. With the exception of the candidum lily, which should be planted as soon after the first of September as possible, the lilies should all be planted in October. After planting, mulch the border with three or four inches of stable manure, which should be removed in early spring, and the planting of the border completed as soon as possible. Remember always, no matter how hardy the bulb or plant may be, its bloom will be improved by the winter covering of manure or other mulching. If the soil is poorly drained the preparation of the border would be the same, except the soil should be removed to the depth of two and one-half feet, and six or eight inches of broken stone placed in the bottom of the border. This is rarely necessary, however.

If back of such a border a rustic trellis is made and covered with flowering climbers, such as clematis, honeysuckles, and everlasting peas, the effect will be greatly enhanced. Along the fence is another good location for hardy border, and the fence will serve the purpose of trellis for hardy vines. Along the face of a shrubbery is a most effective place for hardy border, and among the shrubs may be planted the taller growing lilies and perennials with beautiful effect, and when it is not possible or desirable to make a border on the face of a shrubbery, the recesses usually there could be most charmingly filled with narcissi and many beautiful low growing perennials. Of course the border must be made to suit the location, and can be from three to twelve feet in width, or even wider.

The principal things to be remembered in planting a hardy border are as follows:

First. Group each variety of plants by itself.

Second. Surround all tall growing plants by low ones, that they may stand out boldly and effectively.

Third. Plant to obtain as long and continuous a season of bloom as possible, extending from early spring until late fall.

Fourth. Use the spring flowering bulbs very freely, as they bloom at a time when flowers have their greatest charm, and the same soil can be occupied with plants that bloom at a different season.

Fifth. Plant so as to leave no bare ground, and keep thoroughly well weeded. This is very important, for a hardy border will never be a complete success unless kept entirely free from weeds.

About every second year many of the plants should be taken up and divided, and a portion of them removed to other parts of the ground. The fall is the proper time for doing this.

To secure early spring effects in the border, the introduction of several varieties of Dutch bulbs, such as hyacinths, scillas, narcissi, anemones, tulips and crocuses will be desirable. The hyacinths, after a couple of seasons, will become worthless, but the others need not be disturbed for years. If the hardy border is carpeted with some low growing creeper, such as *veronica repens*, and all hardy borders should be so carpeted, the bulbous flower will make a charming appearance coming through and blooming over such a carpet in early spring. Snow drops, crocuses, scillas and *narcissi poetici* may be scattered through the grass on the lawn with good effect. *Scilla Siberica* is the most charming little blue flower imaginable deserving a fuller recognition among hardy spring flowers.

The following condensed list of hardy border plants will furnish a constant succession of bloom. This collection can be secured for the nominal sum of five dollars.

Achillea serrata plena ' The Pearl"—A variety of yarrow, with white flowers resembling chrysanthemums.

Anomena Japonica alba—The wind flower, producing lovely white flowers in September and October.

Campanula persicifolia—The well-known harebell, laden with pale blue bells all summer.

Coreopsis lanceolata—A hardy plant, with golden blossoms on long stems, affording cut flowers all summer.

Delphinium Sinese—A dwarf larkspur, covered with delicate white, light blue, or dark blue flowers from four to six months of the year.

Dianthus plumarius plenus, or Double Garden Pink—Bearing very fragrant flowers.

Eryngium amethystinum—A fine plant, giving a beautiful mass of purple or amethyst in shrubberies.

Euonymus radicans variegata—A useful climber, with gold and green foliage, changing to a carmine in winter.

Funkia undulata variegata—A variety of the day lily, with exquisitely waved and variegated leaves.

Galilardia grandiflora—A valuable plant for cutting purposes, bearing handsome flowers of golden yellow, banded by a ring of crimson, and in bloom from early summer until the snow flies.

Gypsophila paniculata—A plant of free growth, bearing small white flowers of unique appearance.

Helianthus Maximilianus—A sunflower which keeps its brilliant blossoms after all other plants have yielded to autumn winds.

Hemerocallis flava—An ornamental plant with fragrant lily-like flowers of bright golden yellow.

Iris Sibirica sanguinea—An exquisite variety of iris, whose large, white-veined, purple flowers rival an Orchid in beauty.

Iris Germanica—A very showy class, bearing large flowers in great variety of coloring.

Iris Kæmpfer—The Japan iris, whose bright green foliage and brilliant blossoms make it a desirable plant.

Monarda ddyma—The horsemint known to old gardens; very showy flowers in two tones of red.

Papaver involucratum maxmum—A showy poppy, whose striking scarlet flowers are spotted with black at the base of petal.

Phlox subulata or Moss Pink—A dainty dwarf plant, excellent for many purposes and succeeding where grass would not.

Phlox panculata—Comprising all effective colors, and especially fine for cutting purposes.

Pyrethrum ulgnosium—A fall-flowering plant, similar to the marguerite, and valuable for cutting.

Salva pratensis—A variety of sage, producing beautiful blue spikes from May to July.

Sedum spectable—An excellent border plant, having pink blossoms and pale green leaves; commonly called stone-crop.

Tunica saxifraga—A dainty little plant bearing delicate pink flowers all summer.

Where a proper situation and exposure can be secured, or is offered, the introduction of a rock garden supplements the herbaceous border and affords a fine opportunity for the use of hardy ferns. The following list can be utilized advantageously for this purpose; the common names and heights, as well as the botanical names are given, in order to secure a proper grouping of the plants. All ferns usually do better in partial shade than in the full sunlight, and all thrive best in a soil consisting principally of leaf-mold or peat. For rock-gardens and many other situations, ferns are most admirably adapted, and give most effective results.

‡ *Evergreen Species.*
* *Species adapted for open border culture.*
† *Species requiring a shady situation.*
‖ *Species requiring moist, well-drained situations.*
§ *Species best planted between fissures of rocks.*
*† *Adiantum pedatum.* [Maiden Hair.] 1 foot.
‖ *Asplenium Felix-fœmina.* [Lady Fern.] 2 to 3 feet.
‖ " *augustifolium.* [Narrow-leaved Spleenwort.] 2 to 3 feet.
†§ " *ebenium.* [Ebony Fern.] 15 inches.
*† " *thelypteroides.* [Silvery Spleenwood.] 3 feet.
†‖§ " *Trichomanes.* [Common Spleenwood.] 6 inches.
*† *Aspidium acrostichoides.* [Christmas Fern.] 1 foot.
†‖ " *aculeatum var. Brauni.* [Prickly Shield Fern.] 2 feet.
‖ " *cristatum.* [Crested Shield Fern.] 1 to 2 feet.
* " " *var. Clintonianum.* 4 feet.
†‖ " *Nova-borescensis.* [New York Fern.] 1 foot.
* " *marginale.* [Margined Shield Fern.] 1 to 2 feet.
‖† " *spinulosum var. intermedium.* [Wood Fern.] 15 inches.
‖ " *Thelypteris.* [Marsh Fern.] 12 to 15 inches.

*‡ *Botrichium Virginicum.* [Moon-wort.]
* " *ternatum.* [Grape Fern.] 12 inches.
†§ *Camptosorus rhizophyllus.* [Walking-Leaf.] 9 inches.
* *Cystopteris bulbifera.* [Bladder Fern.] 2 feet.
§† " *fragilis.* 4 to 8 inches.
†‖ *Dicksonia punctilobula.* [Gossamer Fern.] 2 to 3 feet.
† *Lygodium palmatum.* [Climbing Fern.] 3 feet.
‖ *Onoclea sensibilis.* [Sensitive Fern.] 2 feet.
* " *Struthiopteris.* [Ostrich Fern.] 3 feet.
* *Osmundia regalis.* [Royal Fern.] 3 feet.
* " *Claytoniana.* 3 feet.
* " *cinnamonea.* [Cinnamon Fern.] 5 feet.
†‖ *Phegopteris Dryopteris.* [Oak Fern.] 1 foot.
† " *hexagonoptera.* [Beech Fern.] 1 foot.
‡ *Polypodium vulgare.* 10 inches.
*§ *Woodsia Ilvensis.* 6 inches.
*§ " *obtusa.* 12 inches.
‖ *Woodwardia angustifolia.* [Chain Fern.] 18 inches.
†‖ " *Virginica.* 3 feet.

Usually, wild plants or ferns obtained from the borders of woods, fence lines, and the highway, cannot be successfully transplanted, except by a person somewhat familiar with the habits and growth of the plants to be transplanted. It would be a waste of time and energy to attempt the transfer of wild plants, accustomed to the protection of the woods, to open, exposed borders in the school grounds. If the soil, situation, and exposure are to be similar in the school ground to that from which the plant is removed, there may be some assurance of success in the effort. Generally, better success and results are secured by the purchase of plants from well established nurserymen, who are specialists in perennials and hardy ferns.

The demand for perennials has increased very much within the last few years, as their introduction has become more extended and the results attendant upon their use have been conspicuously shown. If sufficient space is not available for the introduction of a mixed border, as heretofore outlined, it is better, where a few detached beds can be made, to plant a number of specimens of one kind as a mass, than to have mixed effects in a small bed.

The mixed borders in Washington Park, Albany, N. Y., have been made in connection with a screen of flowering shrubs as a background, the foreground being shaded down to the bordering walk by perennials, arranged somewhat as to height.

Where detached masses of color are desired, the effect is secured by massing larkspurs, hollyhocks, sunflowers, tall phloxes, lilies, candidum and amatum, and pyrethrums in solid blocks, each variety in a bed, or bay by itself. Nothing succeeds without a proper preparation of the soil, and subsequent to the planting, a proper care of the borders, as heretofore detailed.

WM. S. EGERTON,
Superintendent Parks,
ALBANY, N, Y.

THE PLANTING SONG.

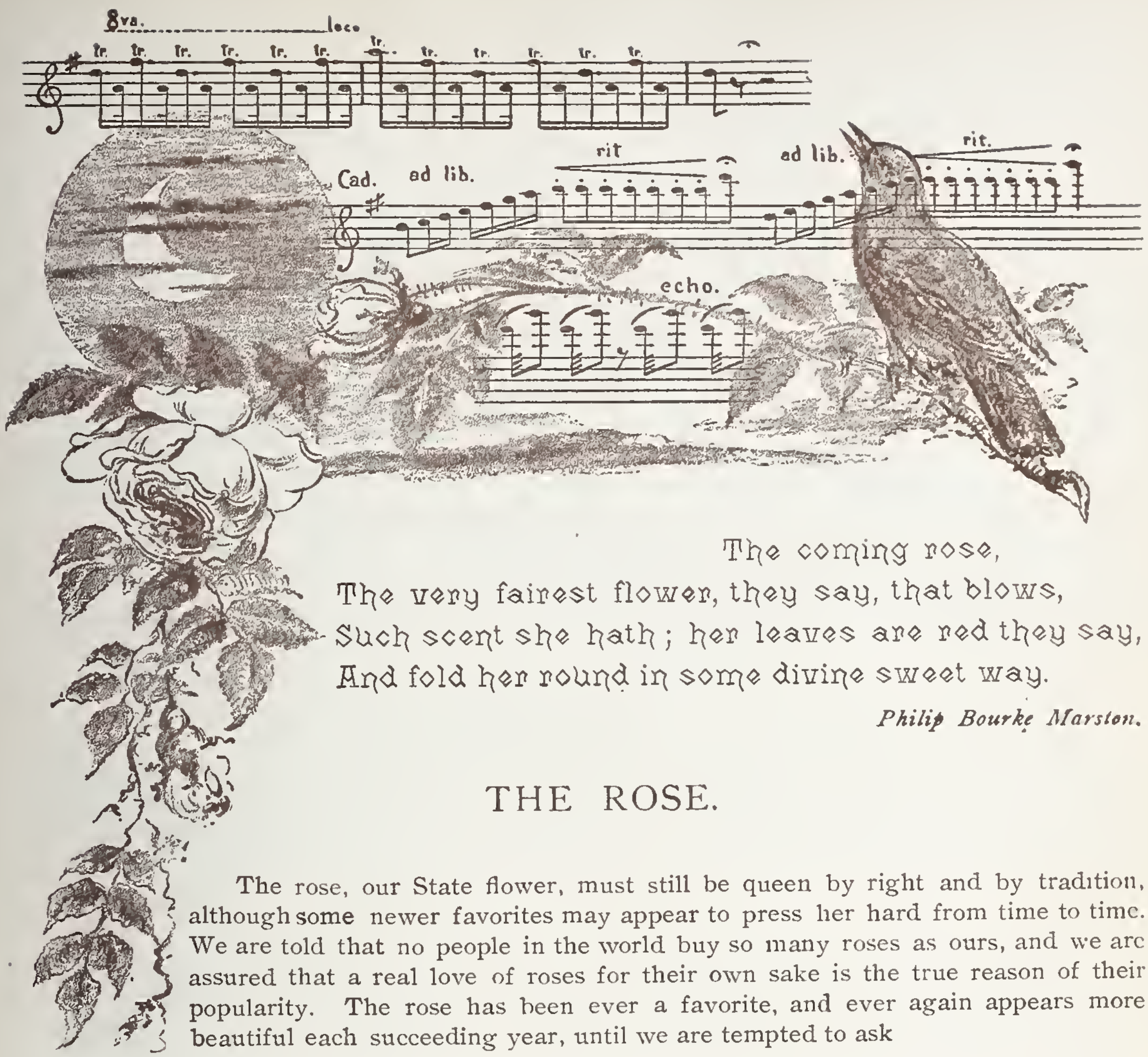
The Rev. S. F. Smith, the author of "My Country, 'Tis of Thee," sent the following to a friend with these words: "I send on the accompanying sheet a song for tree-planting day. If you like it you may keep it in your portfolio till next tree-planting festival. It may add interest to your ceremony. The hymn, as you will see at once, is suited to the tune 'America.'"

Joy for the sturdy trees
Fanned by each fragrant breeze,
Lovely they stand!
The song birds o'er them trill,
They shade each tinkling rill,
They crown each swelling hill,
Lowly or grand.

Plant them by stream and way,
Plant where the children play
And toilers rest:
In every verdant vale,
On every sunny swale—
Whether to grow, or fail,
God knowest best.

Select the strong, the fair,
Plant them with earnest care,
No toil is vain.
Plant in a fitter place,
Where, like a lovely face,
Let in some sweeter grace,
Change may prove gain.

God will his blessing send,
All things on him depend.
His loving care
Clings to each leaf and flower,
Like ivy to its tower;
His presence and His power
Are everywhere.—*S. F. Smith.*



The coming rose,
The very fairest flower, they say, that blows,
Such scent she hath; her leaves are red they say,
And fold her round in some divine sweet way.

Philip Bourke Marston.

THE ROSE.

The rose, our State flower, must still be queen by right and by tradition, although some newer favorites may appear to press her hard from time to time. We are told that no people in the world buy so many roses as ours, and we are assured that a real love of roses for their own sake is the true reason of their popularity. The rose has been ever a favorite, and ever again appears more beautiful each succeeding year, until we are tempted to ask

"Bloom ye for your own delight
Or for ours, I wonder!"

And just as surely every time we receive the answer in the words of Emerson,

"Tell them, dear, that if eyes were made for seeing,
Then Beauty is its own excuse for being."

There are a variety of legends concerning this flower of "nameless grace," the universal popularity of this favorite blossom having from the earliest times made it justly in repute. In olden times we read how in Scandanavia and Germany the rose was under the special protection of dwarfs and elves, and of its lineage the rose says, "I came of nectar spilled from heaven. Love, who bore the celestial vintage tripped a wing and overset the vase; and the nectar, spilling on the valley of the earth bubbled up in roses."

Among the many curious traditions existing between certain birds and plants, one of the prettiest is from the Persian folk love, according to which, whenever the rose is plucked the nightingale utters a plaintive cry, because it cannot endure to see the object of its love injured. A legend told by the Persian poet, Attar, relates how all the birds appeared before Solomon and complained that they were unable to sleep from the nightly wailings of the nightingale. The bird, when questioned as to the truth of this statement, replied that his love for the rose was the cause of his grief. Hence this supposed love of the nightingale has been referred to frequently by our poets, of which allusions one of the simplest, and, we think, most beautiful, is by Moore, in Lalla Rookh,

"Though rich the spot
With every flower this earth has got,
What is it to the nightingale,
If there his darling rose is not?"

though Byron more grandly sings

> "The rose o'er crag or vale,
> Sultana of the nightingale,
> The maid for whom his melody,
> His thousand songs are heard on high,
> Blooms blushing to her lover's tale,
> His queen, the garden queen, his rose."

So much has been said and written on the rose that one cannot do it justice within the compass of a few pages. One writer says: "I imagine it would be delightful to study roses for a decade," and to come to the practical side of the question, such a course would do us all good. We are told by good authority that there is now nowhere in the United States anyone distinguished for a knowledge of cultivated roses. What more natural than that some boy or girl of the Empire State, from a love of this State flower engendered in the early years, should develop into a distinguished rosarian, as they call it in England. The field is an inviting one, and what is really needed is that some one shall take up and carry on systematically the study of roses where other men have left it. The possibilities of rose culture in this country are great, and certainly there is nothing more needed in American horiculture, neither is there any other field where intelligent investigation can do more useful work.

We give below a few directions for the culture of hardy roses, and a short list of some of the finest ones, that teachers and pupils may interest themselves, wherever possible, in a hardy, perpetual rose garden, which needs only a little care in fall and winter to insure a fine garden in the spring again.

CULTURAL DIRECTIONS.

Preparation of the Ground. Roses will grow in any fertile ground, but are much improved in bloom, fragrance, and beauty by rich soil, liberal manuring, and good cultivation. The ground should be subsoiled and well spaded to the depth of a foot or more, and enriched by digging in a good coat of cow manure or any fertilizing material that may be convenient. Renew old beds by decayed sods taken from old pasture land.

Planting. When the ground is thoroughly prepared — fine and in nice condition — put in the plant slightly deeper than it was before, spread the roots out evenly in their natural position, and cover them with fine earth, taking care to draw it closely around the stem, and pack firmly down with the hand. It is very important that the earth be tightly pressed down on the roots. Budded roses should be planted three inches below the bud. Always select an open, sunny place, exposed to full light and air. Roses appear to best advantage when planted in beds or masses.

Watering. If the ground is dry when planted, water thoroughly after planting, so as to soak the earth down below the roots, and if hot or windy, it may be well to shade for a few days. After this not much water is required, unless the weather is unusually dry.

Pruning. Old and decayed branches and at least half the previous season's wood should be cut away early each spring, and a little cutting back after the first blooming will insure more late flowers. Climbing and pillar roses should not be cut back; but the tips of the shoots only should be taken off, and any weak or unripe shoots cut out altogether.

FALL AND WINTER TREATMENT.

Fall Treatment. In the fall the rose beds should have a good dressing of stable manure or any fertilizer convenient. The winter rains will carry the strength to the roots, and the remaining matter makes a nice mulch, which in many places is all the protection necessary. Where the winters are not very severe, tender roses may be covered with clean rye straw, forest leaves, or evergreen branches, not too thickly, but so as to permit considerable circulation of air and not to retain water; nothing should be used that will ferment, heat, or rot. The object of covering is to break the force of sudden and violent changes, particularly in March, when the plants should be protected from the *sun*, rather than *cold*, the sudden thawing of the frozen wood doing the damage.

GENERAL LIST.

Fine Hardy Roses.

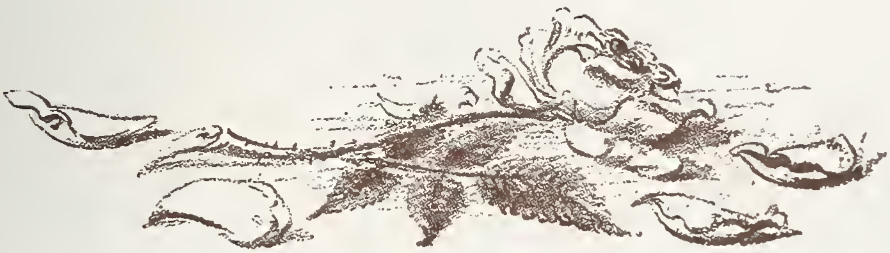
Anna de Diesbach.
Baron Taylor.
Blanche de Meru.
Baron Maynard.
Baltimore Belle.
Baron de Bonstetten.
Baron Prevost.
Caroline de Sansal.
Countess de Serenye.
Coquette des Alps.
Climbing Jules Margotten.
Climbing Victor Verdier.
General Jacqueminot.
Gloire de Margotten.
Jules Margotten.
John Hopper.
La Reine.
Louise Odier.
Magna Charta.
Mme. Plantier.
Mme. Alfred de Rougemont.
Marie Bauman.
Perle des Blanches.
Pierre Notting.
Prince Camille de Rohan.
Queen of Prairie.
Sweet Briar.
Seven Sisters.
Triomphe de l'Exposition.

SPECIAL LIST.

Recent Introductions, all Excellent.

Alfred Colomb.
Dawson.
Duke of Edinburgh.
Eugene Guinoiseau (Moss).
Gem of Prairies (Grafts).
Lady Helen Stewart.
La Rosiere.
M. P. Wilder.
Mme. Gabrielle Luizet.
Mme. Victor Verdier.
Mrs. John Laing.
Meteor.
Paul Neyron.
Perpetual White Moss.
Rugosa Alba (Grafts).
Rugosa Rubra (Grafts).
Salet Moss.
Ulrich Brunner.
Wichuriana.

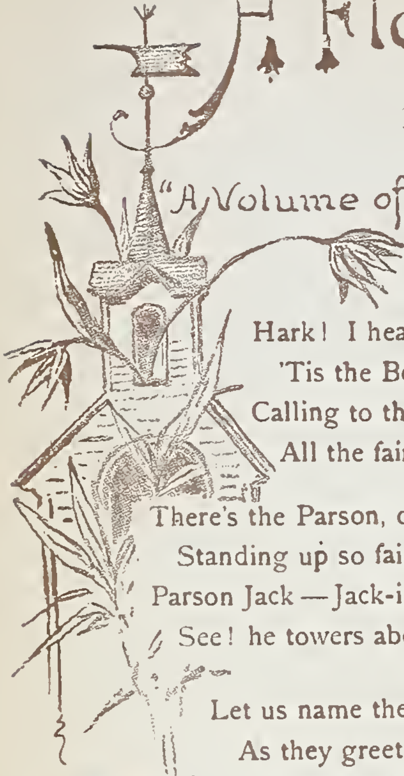
With a little trouble and forethought, the school grounds can be made one of the most attractive of spots, and mischievously busy hands can be given something to do and a responsibility and trust, which, when turned in a right and natural direction, will accomplish more than we have ever dared to hope or think.



A Floral Grove Meeting.

By Mrs. M. A. B. Kelly;

AUTHOR OF
"A Volume of Poems"—"Leaves from Nature's Story Book.
· etc · etc ·



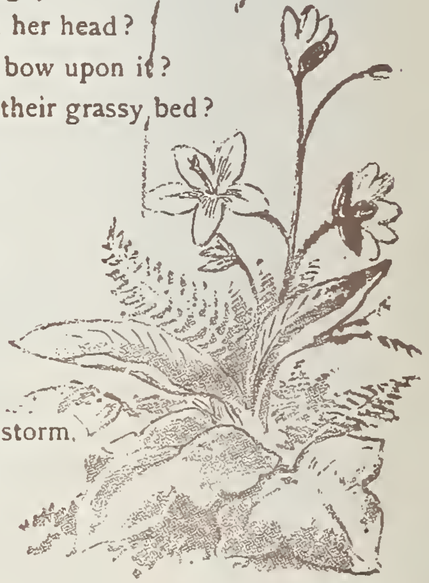
Hark! I hear the sound of music,
'Tis the Bellworts, how they ring,
Calling to the morning service
All the fairest flowers of spring.

There's the Parson, do you see him
Standing up so fair and tall?
Parson Jack—Jack-in-the-Pulpit-
See! he towers above them all.

Let us name these woodland fairies,
As they greet us, one by one,
With their dewy robes bejeweled
In the early morning sun;

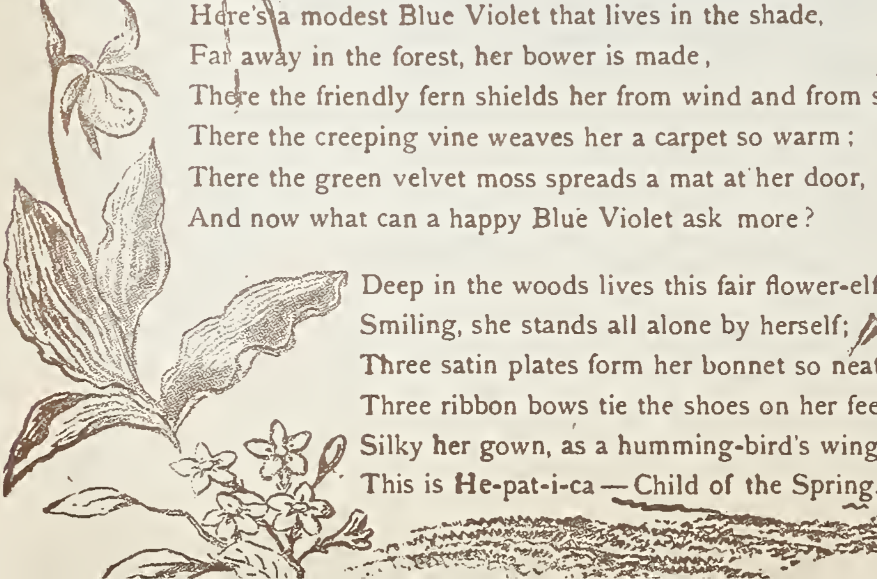
Let us name these flower-people,
With their pretty woodland ways,
As they seem to smile upon us
Like old friends of bygone days.

Do you know the lowly Cowslip, with her shining, yellow bonnet?
Do you love the modest Daisy, with a cap upon her head?
Have you found the Lady's Slipper, with a tiny bow upon it?
Have you watched the baby Bluets sleeping on their grassy bed?

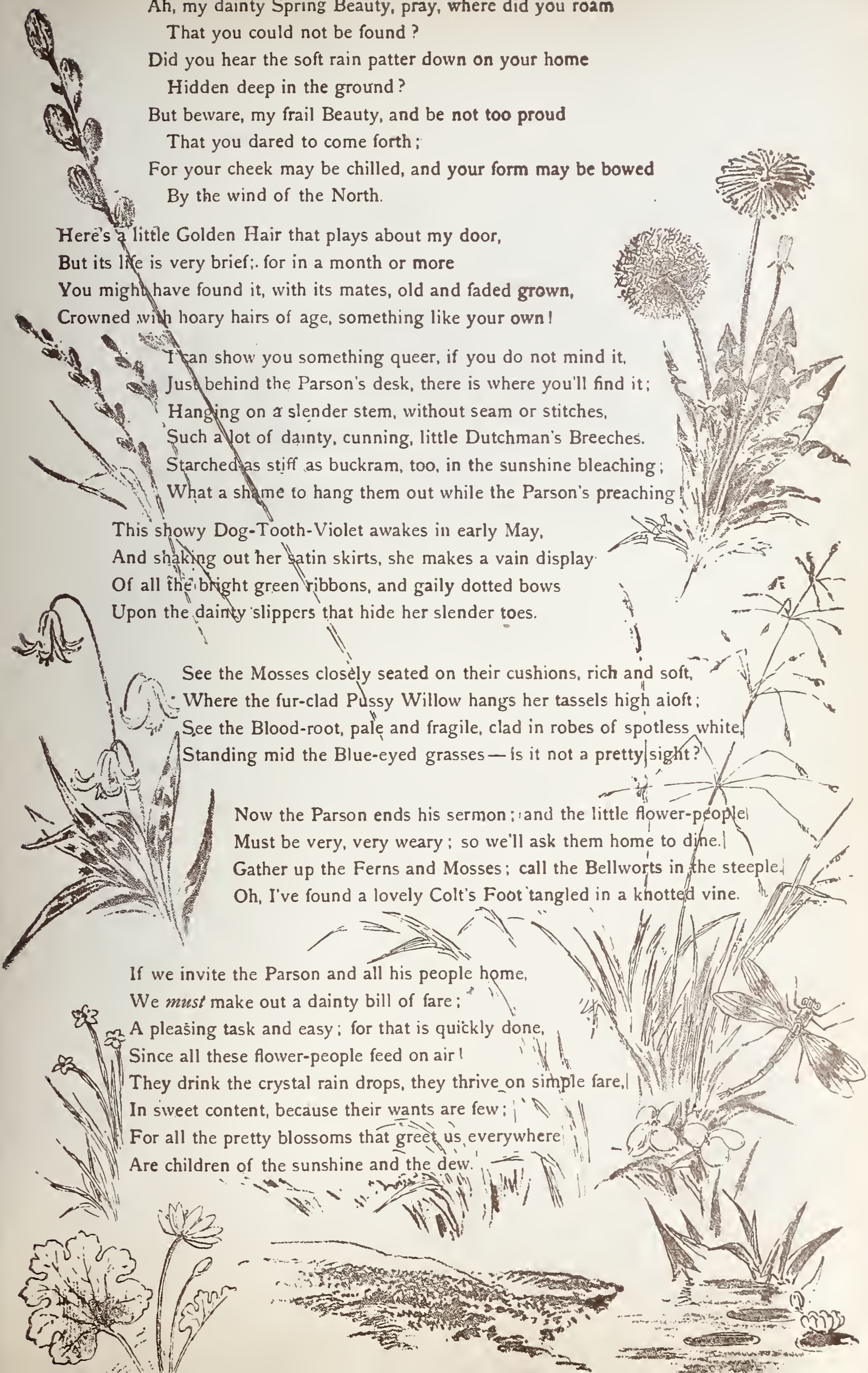


Here is the Arbutus, red-lipped and fair,
Under a larch tree I found it,
Shedding its perfume abroad everywhere
Mid the sweet blossoms around it.

Here's a modest Blue Violet that lives in the shade,
Far away in the forest, her bower is made,
There the friendly fern shields her from wind and from storm,
There the creeping vine weaves her a carpet so warm;
There the green velvet moss spreads a mat at her door,
And now what can a happy Blue Violet ask more?



Deep in the woods lives this fair flower-elf,
Smiling, she stands all alone by herself;
Three satin plates form her bonnet so neat,
Three ribbon bows tie the shoes on her feet;
Silky her gown, as a humming-bird's wing—
This is He-pat-i-ca—Child of the Spring.



Ah, my dainty Spring Beauty, pray, where did you roam
That you could not be found?
Did you hear the soft rain patter down on your home
Hidden deep in the ground?
But beware, my frail Beauty, and be not too proud
That you dared to come forth;
For your cheek may be chilled, and your form may be bowed
By the wind of the North.

Here's a little Golden Hair that plays about my door,
But its life is very brief; for in a month or more
You might have found it, with its mates, old and faded grown,
Crowned with hoary hairs of age, something like your own!

I can show you something queer, if you do not mind it,
Just behind the Parson's desk, there is where you'll find it;
Hanging on a slender stem, without seam or stitches,
Such a lot of dainty, cunning, little Dutchman's Breeches.
Starched as stiff as buckram, too, in the sunshine bleaching;
What a shame to hang them out while the Parson's preaching!

This showy Dog-Tooth-Violet awakes in early May,
And shaking out her satin skirts, she makes a vain display
Of all the bright green ribbons, and gaily dotted bows
Upon the dainty slippers that hide her slender toes.

See the Mosses closely seated on their cushions, rich and soft,
Where the fur-clad Pussy Willow hangs her tassels high aloft;
See the Blood-root, pale and fragile, clad in robes of spotless white,
Standing mid the Blue-eyed grasses — is it not a pretty sight?

Now the Parson ends his sermon; and the little flower-people
Must be very, very weary; so we'll ask them home to dine.
Gather up the Ferns and Mosses; call the Bellworts in the steeple.
Oh, I've found a lovely Colt's Foot tangled in a knotted vine.

If we invite the Parson and all his people home,
We *must* make out a dainty bill of fare;
A pleasing task and easy; for that is quickly done,
Since all these flower-people feed on air!
They drink the crystal rain drops, they thrive on simple fare,
In sweet content, because their wants are few;
For all the pretty blossoms that greet us everywhere
Are children of the sunshine and the dew.

THE OAKS.

In the greater part of North America, as well as in Europe, there is no tree so generally useful as the oak. The number of varieties presenting sufficiently marked characters to justify specific rank probably approach three hundred in number, of which forty-four species have been found in America and classified, and of which thirteen species are natives of our State.

The oak has been long famous for its supernatural strengh and power, and has been much employed in folk-medicine. It was particularly sacred to the early Druids, groves of oak being their chosen retreats; and some writers would derive the word kirk, now softened into church, from *quercus*, an oak.

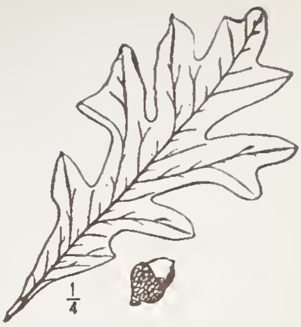
The oaks, because of their large tap-roots, can be transplanted only when small. They are, therefore, propagated with difficulty by every other mode except from seed; and, generally, time will be gained when the acorns are sown where the plants are intended to remain. The acorns may be gathered from the ground immediately after having dropped, and may either be sown then or kept in dry sand or moss until the following spring. In planting, cover the acorn with well broken soil from one and one half inches to one half inch, according to its size. To attain their full size, the oaks require a deep, loamy soil, and a situation low rather than elevated. Much comfort can be taken in the fact that an oak once rooted will not wholly perish, but some day is likely to conquer even the most obdurate of soils.

The oaks are divided into two classes: those on which the fruit ripens annually, whose leaves have no bristles, whose acorns are sweet; and those on which the fruit is two years in ripening, known by its occupying the old wood below the leaves of the season, and whose leaves are mucronated, or tipped with spiny points, and the acorns bitter. The first six of our list are annual fruited, the remaining, biennial fruited.

The sterile and fertile flowers of the oak appear on the same tree, and are greenish or yellowish. The description given under *Quercus alba* will apply to all the species.

Of all trees, the oaks are, on the whole, likely to give most satisfaction when late foliage is desired. The oak leaves turn a variety of rich, deep hues in the autumn, which are the most satisfying of all, and some remain on the tree until the buds of another year begin to open. The sturdiness of the oak is only realized in winter, when the knotted strength of its limbs are not disguised under their covering of leaves.

QUÉRCUS ÁLBA, L.—WHITE OAK.

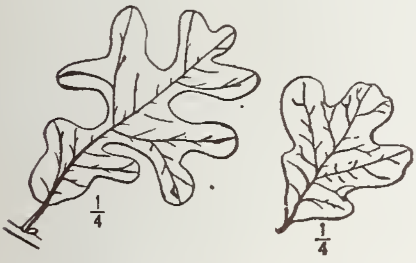


Few American oaks grow over such a wide stretch of country, or are so generally multiplied; most akin to the oak of myths and poetry, and the oak generally represented in conventional designs; owes its name to color of bark, light gray or nearly white, with surface broken into long, narrow, rather thin ridges. Large tree, sixty to eighty feet high, trunk often six feet in diameter. Leaves upon unfolding are tinged with red and coated with silvery white down. At this time tree is almost covered with its catkins of yellow flowers. At maturity, leaves smooth, bright green above, downy beneath; obovate-oblong, three to nine obliquely cut, obtuse, and mostly entire lobes, six or eight inches long by two or three inches broad, on short, stout petioles; very persistent, in autumn coloring beautifully to yellow, orange, and deep vinous red or bright scarlet, and gradually to brown as they die.

Sterile flowers on slender, naked, hanging catkins, with lobed yellow calyx and six to eight stamens; fertile flowers, less conspicuous, generally sessile, scattered or clustered, with a three-lobed sessile stigma and a three-celled ovary enclosed by scaly bud which becomes cup of acorn. Acorn in axil of leaf of the year, ovoid-oblong, one inch, in shallow, rough cup, sweet and edible.

Wood, very heavy, strong, hard, tough, and close-grained, very useful.

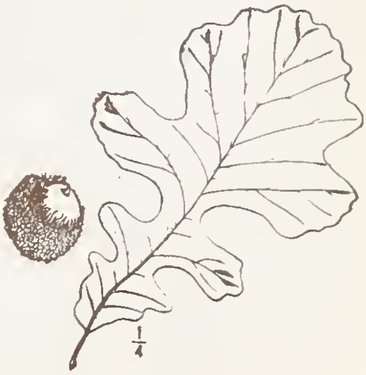
QUÉRCUS OBTUSÍLOBA, Mx.—POST OAK.



Probably not found farther north than the lower banks of the Hudson; dry and sandy soil; forty to fifty feet high, diameter fifteen inches. Bark thick and of a grayish white. Leaves four to six inches long, sinuately cut into five to seven roundish, divergent lobes, of which the two nearest the summit are generally the broadest and often notched; dusky green above and grayish beneath, on short petioles. Towards fall, ribs are of a rosy tint. Acorn small, one half inch, ovoid, one third to one half enclosed in rugged, grayish cup, in axil of leaf of the year, sweet.

Wood yellowish, heavy, very hard, close-grained, largely used for construction.

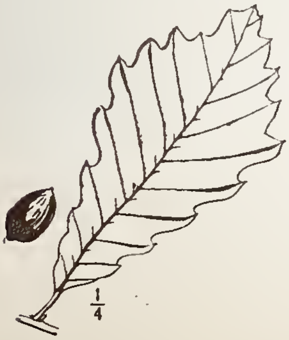
QUÉRCUS MACROCÁRPA, Mx.—BUR OAK OR MOSSYCUP OAK.



One of the most widely distributed and valuable trees of North America; most ornamental and desirable in cultivation; easily raised; adapts itself to very different climatic conditions. Beautiful tree, forty to sixty feet high, dark, tufted foliage. Leaves sometimes larger than those of any other oak in United States; obovate or oblong, lyrately pinnatifid or deeply sinuate-lobed or nearly parted, the lobes sparingly and obtusely toothed or entire. Acorn broadly ovoid, larger than that of any other American species, one inch or more long, one half to almost entirely inclosed in a thick and woody cup, with usually a mossy fringed border formed of the upper awned scales; cup variable in size, three fourths to two inches across.

Wood heavy, strong, hard, tough and close-grained, light or rich dark brown, very valuable, employed as wood of *Q. alba.*

QUÉRCUS BÍCOLOR, Willd.—SWAMP WHITE OAK.

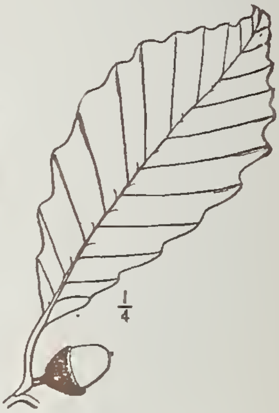


The name of this species indicates the soil which it prefers and its analogy to *Quercus alba.* Beautiful tree, sixty to eighty feet high, trunk five to eight feet in diameter. Bark of young trees separates into large, thin, brown, papery scales, which give a ragged appearance that other oaks do not present; bark of large trees rough, with thick, pale, flaky scales not very unlike those of white oak, usually rather darker colored. Leaves oblong or oblong-ovate, wedge-shaped at base, coarsely crenately-serrate; six or eight inches long and three or four inches broad, smooth and dark green on upper surface and pale and soft-downy beneath, main primary veins six to eight pairs. Foliage of no other oak in this State is more beautiful. When leaves unfold, upper surface is sometimes pale and sometimes bright red, lower surface downy white. Contrast between colors of upper and lower surfaces gives it its specific name. Leaves in autumn turn yellowish-brown.

Acorn sweet, one inch long, obtuse or oblong-ovoid, set in shallow cup sometimes mossy fringed at margin, borne singly or in pairs on stalks much longer than petioles of leaves ; in axil of leaf of the year.

Wood strong, close-grained, very tough, elastic, and perhaps even more valuable than that of *Q. alba.*

QUÉRCUS PRÌNUS, L.—CHESTNUT OAK.



A middle sized or small tree, with beautiful foliage; specific name given from resemblance of leaf to that of chestnut tree. Leaves obovate or oblong, wavy toothed, minutely downy beneath, light shining green above, with ten to sixteen pairs of straight, prominent ribs beneath.

Acorn sweet, ovoid, one inch or less long, in shallow, scaly cup, in the axil of leaf of the year, and on short peduncle.

Wood reddish, heavy, hard, strong, rather tough and close-grained. Bark rich in tannin.

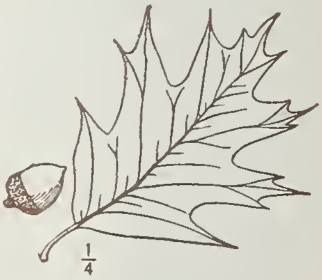
QUÉRCUS PRINOÌDES, Willd.—SMALL CHESTNUT OAK.

Small, shrubby appearing tree, from three to four feet high ; barren or sandy soil. Leaves obovate or oblong sinuate, narrowed at base; light green above and whitish beneath, and smaller than those of other species.

Acorn and cup like those of true chestnut oak, but very much smaller; sometimes producing little abortive acorns in the axils of some of the scales of the cup.

Wood heavy, hard and very strong.

QUÉRCUS RÙBRA, L.—RED OAK.

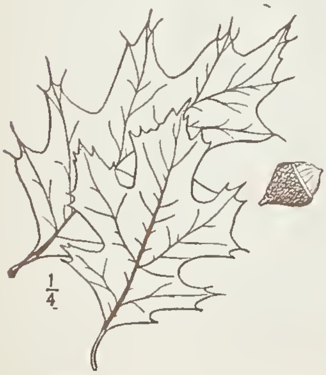


Tall, wide spreading tree, sixty to ninety feet high, three or four feet in diameter. Bark gray or light brown and rather smooth, especially that of main branches. Leaves thin, smooth, oblong, deeply pinnatifid with accuminate, coarsely toothed lobes; when they unfold they are smooth and lustrous on upper surface and coated on the lower, like the young branchlets, with pale pubescence ; very late in autumn, after frost, they turn dark red, and brown before they fall.

Acorn large and abundant, oblong-ovoid, set in shallow cup: sessile or nearly so, and bitter.

Wood reddish and very coarse-grained, pores large. Bark used in tanning.

QUÉRCUS COCCÍNEA, Wang.—SCARLET OAK.



A large handsome tree, sixty to eighty feet high, three or four feet in diameter, with dark grayish bark, not deeply furrowed; distinguished for rich coloring and late persisting foliage. Leaves oval or oblong, deeply pinnatifid, the six to eight lobes divergent and sparingly cut-toothed, notches rounded; thin, smooth, shining, glabrous, even when they first unfold ; in autumn assume a deep scarlet, red dotted with crimson, or orange-red color, then becoming brown ; footstalk long and slender.

Acorn one half to three fourths inch long, roundish, depressed, about half enclosed in top-shaped, scaly cup ; in the axil of leaf-scar of preceding year.

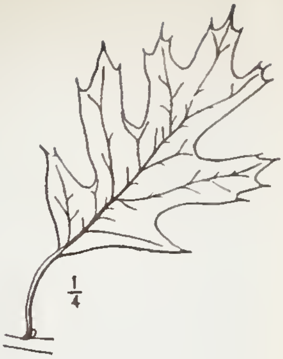
Wood reddish, heavy, hard and strong, coarse-grained and makes poor fuel ; confounded with *Q. rubra.* Bark employed in tanning.

QUÉRCUS TINCTÓRIA, Bart.—YELLOW-BARKED, OR BLACK OAK.

Bark of trunk darker-colored, thicker, rougher, internally orange, and more valuable to tanner and dyer. Leaves often less deeply pinnatifid, sometimes barely sinuate, thinner, less glossy; turn to a brown or russet, or russet-orange color in autumn.

Acorn nearly round, sometimes striped with bars of yellow and brown, set in a deep, conspicuously scaly cup.

Wood reddish and coarse-grained, with empty pores.

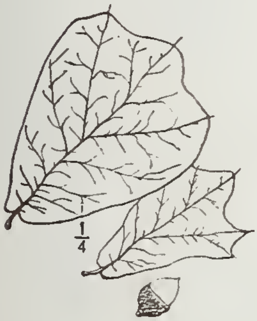


QUÉRCUS NÌGRA, L.—BLACK JACK OR JACK OAK.

A small tree, ten to twenty-five feet high, with thick, deeply-furrowed, and very dark colored bark. Leaves large, thick, wedge-shaped, broadly dilated above, truncate or slightly three-lobed at the end, bristle-awned, smooth and glossy above, rusty-downy beneath; rusty brown hairs found on the lower surface, in the axils of the principal veins.

Acorn oblong-ovate, in the axil of leaf of preceding year, one third or one half inclosed in the top-shaped, coarse, scaly cup.

Wood heavy and compact, coarse-grained and porous.

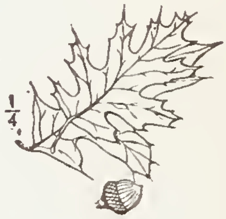


QUÉRCUS PALÚSTRIS, Du Roi.—PIN OAK.

A handsome tree, of medium size, common in low ground. Leaves oblong, deeply pinnatifid, bristle-tipped lobes and rounded notches, and with both sides bright green.

Acorn small, round, contained in flat, shallow cup, almost sessile, in the axil of last year's leaf-scar.

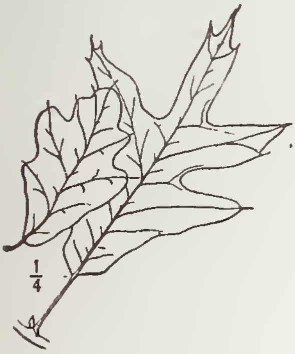
Wood coarse-grained and porous; little esteemed for durability.



QUÉRCUS FALCÀTA, Mx.—SPANISH OAK.

A tree from thirty to seventy feet high, abundant in the South and said to be on Long Island. Bark thick, blackish, deeply furrowed and excellent for tanning. Leaves obtuse or roundish at base, three to five lobes above, lobes prolonged, mostly narrow, and at end somewhat scythe-shaped, (*falcate* meaning scythe-shaped), bristle-tipped, entire or sparingly cut-toothed, soft downy beneath. Leaves very different on different individuals. Acorn small, round, half inclosed in hemispherical, slightly scaly cup.

Wood reddish, and coarse-grained, not durable.



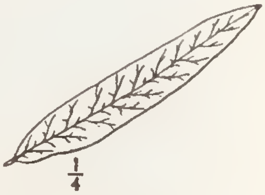
QUÉRCUS PHÉLLOS, L.—WILLOW OAK.

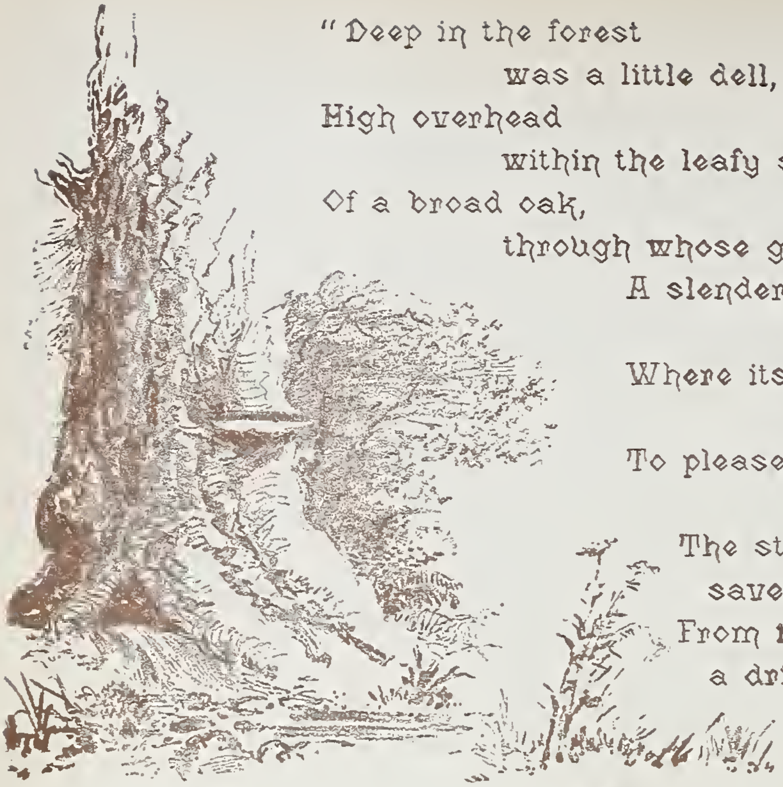
A tree from thirty to fifty feet high, with smooth, thick bark, commonly growing in cool, moist places.

Leaves two to four inches long, thick, linear-lanceolate, narrowed at both ends, entire or very nearly so, scurfy when young, soon smooth, light green, bristel-tipped, willow-like. Fruit rarely abundant.

Acorn small, round, in a shallow saucer-shaped cup, about sessile, on the old wood; very bitter.

Wood reddish, coarse-grained, of little value; as fuel sold at the lowest price.





"Deep in the forest
was a little dell,
High overhead
within the leafy sweep
Of a broad oak,
through whose gnarled root there fell
A slender rill
that sung itself asleep;
Where its continuous toil
had scooped a well
To please the fairy folk;
breathlessly deep
The stillness was,
save where the dreaming brook
From its small urn
a drizzly murmur shook."

James Russell Lowell.

Schools of Agriculture and Horticulture.

There is a practical as well as a sentimental side to Arbor Day. It had its inception in a commendable movement looking to the protection of our forest trees and what may be called the making of new forests on the vast plains of the West. The sentimental feature attached to its observance has been in the development of a love for Nature and her wonderful works, and in the encouragement to delightful study of trees, plants, flowers and birds. There is no doubt that in hundreds of thousands of the children of our country there has been awakened a deep interest in the attractive study of how plants grow, of the use and abuse of trees, and of the relations which birds and flowers bear to the problem of Nature and to human happiness. A child who learns to love trees and flowers, and who derives happiness from them can never go entirely wrong. The whole subject tends to a closer study of Nature in all who have a love for growing things. This study of Nature can be turned to practical use, and be made of lasting benefit to many thousands of the world's workers, especially to those whose privilege it is to till the soil — and from the farms to feed the world. There is a lack of knowledge of the scientific principles of agriculture. This lack increases manual labor without increasing results or happiness. How to make farming pleasant and profitable, how to increase its attractions, how to keep the boys on the farm are some of the problems of our times. There are mysteries of Nature which a well educated agriculturist can solve with profit and pleasure. Ten acres scientifically tended can be made as profitable with less labor as one hundred acres carelessly cultivated. The brain should relieve the hand. Education should abolish drudgery. There is profit as well as poetry in "a little farm well tilled." Then let us make a place in our educational system for schools of agriculture and horticulture. Our agricultural colleges have their places in the system, but they are beyond the reach, and above the heads of a great majority of the boys who are to be the farmers of the future. While our common schools are laying the foundations of an all around education, let us give our children practical lessons which will help on the farm. We may not teach all our boys to be farmers, but we may give those who go from the schools back to the farms a knowledge which shall arouse a love and an enthusiasm for agricultural pursuits which they could never otherwise obtain. This love would do more than any other influence to keep our boys on the farms. It is the child who shows most enthusiasm in study and in play. Then let us teach our children the simple lessons in botany, chemistry, geology and zoology, with which they may combine the study of the habits of plants and trees, how they grow and develope; the study of birds which are the friends and not the enemies of mankind; the study of the composition of soils, the chemistry of futilizers, the needs of grasses and grains, and the harm of noxious weeds. Let them learn that what is taken from the ground must be paid back; that there is a reciprocal relation between the soil and the fertilizer, as between the giver and receiver. How to graft, how to plant and transplant, how to save and how to prune, how to sow and how to reap, are among the things which should be taught. Give us courses in the common schools for the boys and girls who want them, which shall teach some the pleasant things connected with farming. Teach also that it costs no more to produce a pound of good butter or cheese, than a poor one. Give us a garden by the school-house where the lessons of Arbor Day can be practically illustrated, where children can plant and water, where they can see things grow, see Nature develope, see life in soil and plants. France is doing much in this direction, and Canada is agitating the question. Arbor Day should give us educated farmers.

CHARLES R. SKINNER.